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Entrepreneurship in the periphery: The role of pre-entry experience and home advantage for newly founded firms

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Abstract

The aim of this paper is to assess the importance of industry experience and home advantage of entrepreneurs for the competitiveness of new firms in the periphery. We assume that spinoffs founded by local entrepreneurs are generally the most competitive form of entry, and show the highest comparative advantage in peripheral regions. We use matched employer-employee data for Sweden to test the effect of industry experience and home advantage on firm survival (logistic regressions), and job growth of surviving firms (OLS regression) during the period 2004-2012. Our results suggest that industry experience is more important than home advantage for firm survival, but that firms in core areas do benefit from home advantage. Regarding job growth, home advantage seems to be more important than industry experience but with varying significance over the regional hierarchy. After controlling for survival, the positive effect on job growth of being locally embedded seems to be confined to peripheral entrepreneurs.

Key words: Entrepreneurship, spinoffs, home advantage, periphery

1 Introduction

During the last decades, economic geographers have significantly contributed to entrepreneurship research by showing that entrepreneurial activities are unequally distributed across space, and that region-specific characteristics influence entrepreneurial agency (Feldman 2001; Bosma and Schutjens 2011; Mack 2016). However, theoretical and empirical contributions to the geography of entrepreneurship confine themselves predominantly to cities and metropolitan regions (Korsgaard, Müller, and Tanvig 2015; Bosma and Sternberg 2014; Pato and Teixeira 2014). Most prominently, different forms of agglomeration externalities are used to explain why metropolitan regions and large clusters show higher entrepreneurial dynamism than other regional economies (Glaeser, Rosenthal, and Strange 2010). In turn, this narrative states that entrepreneurship in the periphery can hardly be competitive due to limited agglomeration effects, missing elements of entrepreneurial ecosystems, and organizational thinness (Tödtling and Trippl 2005; Isaksen 2015; Mack and Mayer 2016; Andersson, Koster, and Lavesson 2016).

At the same time, pressures on traditional industries and increasing socio-economic disparities between urban and rural areas bring about economic inefficiency and political tension in many western countries. Because of their small population size and relatively specialized regional economies, Swedish peripheral regions have been less resilient to external shocks than their urban counterparts (Eriksson and Hane-Weijman 2017). Consequently, the long-term negative effects of the economic crisis of 2008 are understood to be more accentuated in rural regions throughout Europe (Capello, Caragliuy, and Fratesi 2014). It is thus necessary to expand the empirical evidence on how to strengthen peripheral regional economies in order to reduce inter-regional disparities and the various problems that come along with it. With this paper, we want to contribute to this broad debate by discussing how specific characteristics of entrepreneurs might be related to the competitiveness of newly founded firms in peripheral regions in Sweden, one of the most sparsely populated countries within the EU which during recent years has put a great emphasis on supporting regional development by means of supply-driven policies and entrepreneurship.

Are then the increasing incentives on stimulating entrepreneurs in the periphery doomed to fail given the above mentioned marked deficiencies? Two evolutionary approaches are promising to give an explanation how young firms in the periphery can become competitive: The heritage hypothesis, and the home advantage hypothesis. These two approaches are of particular interest for peripheral regions, as they explain the competitiveness of young firms without necessarily referring to agglomeration externalities. On the one hand, the heritage approach claims that the working experience of entrepreneurs prior to the founding is decisive for the venture's success (Klepper 2011). Entrepreneurs with detailed industry knowledge will be better able to build up and strategically position his or her firm. Spinoffs, that is, firms founded by an entrepreneur with prior working experience in the focal industry (Agarwal et al. 2015), are generally more competitive than other types of start-ups (Klepper 2009). On the other hand, empirical evidence suggests that the embeddedness of founders in their home region, and the social capital that they built up there, has a strong influence on their venture as well. Not only are entrepreneurs more likely to locate their venture in their home region, firms from local entrepreneurs are seen

as more competitive as well (Schutjens and Völker 2010; Figueiredo, Guimarães, and Woodward 2002; Stam 2007).

What makes these approaches especially interesting in the context of peripheral regions is the fact that they do not rely on agglomeration externalities to explain the competitiveness of firms. It is however unclear to what extent the effects of heritage and home advantage vary in different regional settings. The aim of this paper is to empirically analyse if and how heritage and home advantage differ between metropolitan, urban, and peripheral regions. As agglomeration externalities are less prevalent in peripheral regions, we assume that heritage and home advantage have a stronger impact on firm competitiveness in the periphery. In other words, new firms in metropolitan and urban areas can profit more from agglomeration advantages, and thus have to rely to a lesser extent on heritage and home advantage.

In order to discuss this assumption, we use matched employer-employee data from Statistics Sweden, making it possible to track all Swedish firms as well as their founders. Our focus lies on the survival and growth (in terms of employment) of firms founded in 2004 and 2005. More specifically, we test whether heritage and home advantage have a stronger positive effect on the survival and growth of new firms in peripheral than in core regions. Our paper contributes to the economic geography literature on regional development by drawing a more nuanced picture of regional spinoff dynamics. More specifically, we focus on three dimensions of variance: Entrepreneurs with or without industry experience, local and non-local entrepreneurs, and different regional settings. We follow this empirical strategy with the assumption that successful entrepreneurship depends on different entrepreneurial traits in core and peripheral regions.

The results are interesting in several aspects. For the survival of new firms, heritage seems more important than embeddedness. However, the positive effect of pre-entry experience does not seem stronger in peripheral than in core regions. In all types of regions spinoffs show a lower risk of exiting in comparison to start-ups. Concerning job growth of surviving new firms however, embeddedness seems to be more important. And here, the results clearly differ between regions. While, local entrepreneurs show lower growth rates in metropolitan and urban regions, locals have significantly higher growth rates in peripheral regions.

The paper is structured as follows: In the second chapter, we review the heritage and embeddedness approaches and deduce our hypotheses thereof. The third chapter presents the employed dataset and methods, the fourth chapter the results from the regression models. Finally, in the fifth chapter we summarize our results and discuss some conclusions.

2 Theory

It is a widely accepted fact that entrepreneurship is an important aspect of economic change and regional development (Fritsch and Wyrwich 2016). As entrepreneurial dynamics can greatly vary between regions (Bosma and Schutjens 2011; Mack 2016) a large body of literature discusses which regional characteristics have an impact on founding rates and young firm competitiveness. Most prominently, diverse localization externalities (a large pool of specialized workers, the presence of innovative industries, and frequent knowledge spillovers) are regarded as decisive for vibrant entrepreneurial dynamics (Acs et al. 2009). The discussion

on entrepreneurial ecosystems emphasizes the importance of a variety of infrastructures, institutional settings and supporting industries for enabling growth of entrepreneurial communities (Spigel 2015; Mack and Mayer 2016). As these features are predominantly found in metropolitan areas and large industry clusters (Glaeser, Rosenthal, and Strange 2010; Audretsch et al. 2012), scholars conclude that peripheral regions are less able to provide the necessary preconditions for competitive entrepreneurship. The deficits comprise long distances to markets, a lack of skilled workers, limited knowledge spillovers, and underdeveloped regional innovation systems (Malecki 2003; Tödtling and Trippl 2005; Isaksen and Trippl 2016)

There is thus abundant theoretical and empirical evidence that core regions constitute a fruitful environment for entrepreneurs due to the presence of agglomeration externalities. Even if some authors agree that successful entrepreneurial agency is also present in peripheral regions (Bosma and Sternberg 2014; Andersson, Koster, and Lavesson 2016), these approaches generally fail to give convincing answers to the question how young firms outside of economic core regions can strengthen their competitiveness. The question thus arises to what extent entrepreneurship can be successful without the presence of agglomeration externalities. Only a few studies, however, are explicitly analysing how successful entrepreneurship is possible in non-core regions (Freire-Gibb and Nielsen 2014; Baumgartner, Pütz, and Seidl 2013; Anderson 2000; Stathopoulou, Psaltopoulos, and Skuras 2004).

To explain how entrepreneurs can be successful outside of core regions, two approaches focussing on the biographies of entrepreneurs are particularly worth addressing. On the one hand, the heritage approach focuses on the work experience of entrepreneurs prior to the founding of their venture. If newly founded firms are active in the same industry as the founders previously worked in, then these start-ups are termed spinoffs (Agarwal et al. 2015). Spinoffs are seen as an especially competitive form of entry because many routines that the founder learned during his or her prior employment can be implemented in the new firm (Nelson and Winter 2002). Several empirical studies showed how pre-entry experience increases the survival chance of new firms (Agarwal et al. 2004; Klepper 2009), and how spinoff dynamics lead to the clustering of industries (Boschma and Wenting 2007; Cheyre, Kowalski, and Veloso 2015; Klepper 2010). Thus, firm competitiveness and industrial clustering can be explained without the need of agglomeration externalities (Golman and Klepper 2013). Consequently, spinoff dynamics should also occur outside of core regions, and show higher survival chances. However, only few publications analyse spinoff dynamics in the periphery (Lööf and Nabavi 2014; Habersetzer 2016; Mayer 2011; Benneworth 2004). Even though evidence from these studies suggests that spinoff dynamics also occur in peripheral areas, there is still limited evidence on the specificities of spinoff dynamics in the periphery, and most importantly, if and how it differs from spinoff dynamics in core regions.

On the other hand, relational approaches focus on the embeddedness of entrepreneurs (Kalantaridis and Bika 2006), and their influence on new firm performance (Stuart and Sorenson 2007). Since getting embedded in a region is a time-consuming process and requires frequent social interaction, entrepreneurs are supposed to have the most social capital in those regions where they were born, and lived and worked most of their life. Several studies show

that many entrepreneurs choose to return to their region of origin to found their firm (Figueiredo, Guimarães, and Woodward 2002; Dahl and Sorenson 2009), or that regional embeddedness led them to stay there (Stam 2007). Also, Schutjens & Völker (2010) find a positive relationship between local social capital and firm performance. Yet again, also this strand of literature misses a clear distinction between different types of regional economies. It is thus unclear if and how the home advantage differs between core and peripheral regions. Peripheral regions are known for the high degree of embeddedness, high levels of trust, and dense social networks (Kalantaridis and Bika 2006; Jack and Anderson 2002). One can thus expect that the home advantage for entrepreneurs is stronger in peripheral regions. Opposite to this perspective, a strong embeddedness in a region might also hamper entrepreneurship, as „locals have not always been willing to become agents of change, or they may have had a limited ability to engage in new opportunities“ (Akgün et al. 2011). In this logic, economic considerations might be less important than personal ones when it comes to location decisions (Dahl and Sorenson 2009). Consequently, as embeddedness may have positive or negative effects on the success of newly founded firms, it is important to empirically test which theoretical assumptions seems more plausible in which type of regional economy.

The main contribution of this study is thus to directly compare the combined effect of pre-entry experience and home advantage on firm survival and growth in different types of regions. During the last years, several papers analysed the combined effect of heritage and home advantage on entrepreneurial agency. They argue that young firms need both industry experience and regional social capital in order to maximize their chances of success (Furlan and Grandinetti 2016). Dahl and Sorenson (2012) analyse the combined effect of “region tenure” (years of work in the region) and industry experience on the performance of Danish start-ups. They find that both types of experience have a positive effect on firm performance, and conclude that not only human capital (in the form of industrial pre-entry experience) is important for the success of an entrepreneurial venture, but also social capital (in the form of regional experience). Similarly, De Vaan et al. state that “apart from the organizational routines that spinoff firms take with them from their parent firms, firms also benefit from variety in employee’s expertise and personal networks” (2013, 987). For Denmark, Dahl & Sorenson (2013) and Freire-Gibb & Nielson (2014) emphasize the importance of contacts to former colleagues, which might become important employees for newly founded firm. Hervas-Oliver et al. (2017) argue that new firms in the Castellon ceramic tile district in Spain profited from knowledge inherited from their parents as well as from already existing social ties. Also, when analysing the performance of high-growth-firms in Sweden, Borggren et al. (2016) show that the success of firms outside the metropolitan regions was more dependent on the local skills they could acquire, while metropolitan firms to a greater extent benefited from the mere co-location of similar and related firms. Thus, firms in the periphery were more reliant on employee expertise while agglomeration externalities prevailed in the metropolitan regions.

We take these studies as inspiration by stating that both pre-entry industry experience and region tenure are crucial for the success of young firms. We specifically contribute to this strand of literature by investigating whether the effects of heritage and home advantage differ depending on the regional contexts, with a focus on the periphery. We argue that young firms in the periphery can rely to a lesser extent on agglomeration externalities, and thus industry

experience and home advantage will play a more important role for their success. More specifically, we distinguish two aspects of success: Firm survival and job growth.

Firm survival has been the most common indicator for firm success used in heritage studies (Boschma 2015). It is appropriate because, from a firm population perspective, survival is in most cases a good proxy for success. If an organization is able to sustain itself in a competitive market environment, it can indeed be termed successful. Moreover, survival is easy to measure and sources containing information on birth and death of firms are abundant. We thus follow the approved approach in heritage studies by formulating the following hypotheses:

Hypothesis 1: By being more embedded, local spinoff show the lowest risk to exit in comparison to all other types of entrants.

Hypothesis 2: The benefit of embeddedness for spinoffs is the highest in the periphery due to the relative absence of agglomeration externalities.

However, taking survival as indicator for firm success has also disadvantages. First, while survival predominantly means success, exit does not necessarily mean failure. Young firms might follow the strategy of high growth during the first years in order to maximize the chances of being bought by large incumbent firms (Borggren, Eriksson, and Lindgren 2016). Their exit, or more precisely their acquisition, would thus rather be an indicator for success, than for failure (Weterings and Marsili 2015) . Second, if one is not only interested in firm population evolution, but also in the contribution of entrepreneurship to regional development, firm survival is a less suited indicator for positive economic dynamics. In this case, the contribution of new firms to regional job growth is a much more useful measure of success (Fritsch and Schindele 2011; Frenken, Cefis, and Stam 2015). Consequently, we add two hypotheses regarding job growth to our analysis:

Hypothesis 3: By enjoying both a home advantage and industry experience, local spinoff show the highest growth rates in comparison to all other types of entrants.

Hypothesis 4: The comparative advantage of local spinoffs with regard to employment growth is highest in the periphery.

3 Methods

To address the hypotheses, we make use of matched employer-employee data assembled by Statistics Sweden. This database links features of workplaces (or plants) and firms to characteristics of workers and entrepreneurs. Our base population consists of all plants that existed in Sweden in the years 2004 and 2005. The database combines information on establishments and firms with information on individuals. We are thus able to gather features of the firm owning a specific plant, as well as characteristics of the most important individuals running a plant. We exclude several types of plants from our analysis. First, we do not take into account firms with only one employee. As the only employee of these firms is normally the founder, they, by definition, do not create jobs (e.g. self-employment) and are thus less relevant in the context of studies on regional development (see Andersson, Koster, and Lavesson 2016). We also exclude new firms that establish more than one plant during the analysis period. This

is due to the fact that it is more difficult to determine whether and where the founder has a home advantage.

Two dependent variables are used in this study. On the one hand, we assess the likelihood of survival. A plant is classified as surviving if it is still present in the database after a seven year period[1], and owned by the same firm[2]. For the surviving firms, we measure the average annual growth of plants in terms of employment. For this, we take the difference in number of employees at the first and last observation points, and derive the average change per year as percentage of the initial employment. Thus, a value below 100 signifies a reduction, a value above 100 an increase in employment.

The most important firm-level variable is a classification of firm types based on several firm characteristics. The reasoning behind constructing such a classification rests on the simple assumption that different types of firms show different patterns of survival and job creation. We use five firm characteristics to differentiate nine different types of firms (see figure 1): (1) Is the firm foreign owned (national or international)? (2) Does the Swedish firm own more than one plant (single-plant or multi-plant)? (3) Has the Swedish single-plant firm been founded in 2004 or 2005 (new or incumbent)[3]? (4) Is the firm founder a local person (local or non-local)? (5) Did the firm founder gain pre-entry industry experience (start up or spinoff)?

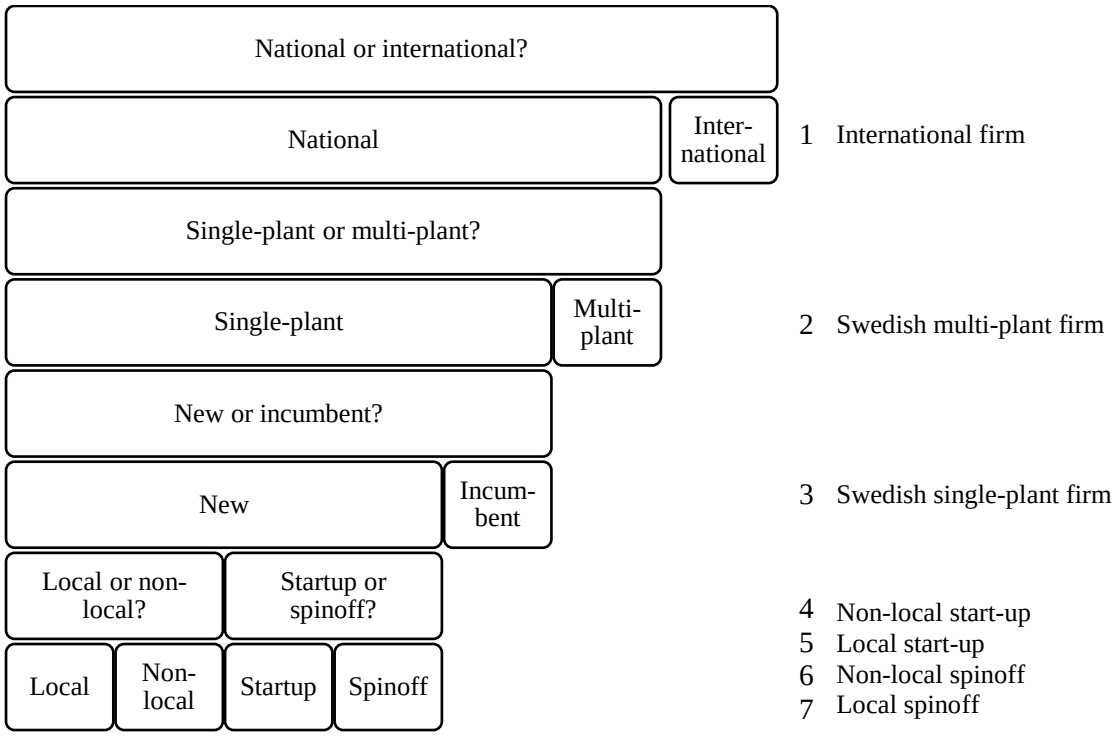

Figure 1: Firm classification scheme

[1] The choice of a seven year period is simply due to the latest available dataset (2013) and the start-year is given by the fact that occupation codes used to define managers is only available from 2001.
[2] The fact that the plant is still owned by the same firm does not mean however that the firm is independent. It is possible that during that time period, the firm changed owners. This fact is accounted for with the "ownership change" variable.
[3] In order to define a firm as new, two conditions have to be met, namely that both the firm and the plant have to be new.

Our definition of "new firm" comprises two preconditions. Not only should the firm be new, but also the plant[4]. The reason for this narrow definition of "new firm" is mainly related to the heritage theory. The heritage theory states that spinoffs are more competitive because firm founders can implement earlier learnt routines. This however can only happen, if the organizational structures at the firm and plant level are not already defined. In this logic, a newly created firm taking over an already existing plant, cannot be considered completely new, because the firm founders can rearrange the organizational structure of the plant only to a limited degree. This is why, for this study, we consider a firm as new only if both the firm and the plant are genuinely new.

When it comes to the characteristics of managers and entrepreneurs, it is necessary to determine which person to focus on. As it would be far too complex to take the characteristics of all plant employees into account, we first determined the person which supposedly is the primary decision maker within the plant. The obvious choice is the owner of the plant. If no single person is identifiable as the owner (for instance in the case of joint stock companies not owned by a single person), the manager of the plant is taken as reference person. Lastly, if no manager is specified, the employee with the highest salary is defined as decision maker.

Two further decision maker characteristics have already been used for the firm classification. More specifically, for newly founded firms, we take the origin and the work experience of firm founders into account. The origin of a founder corresponds to his or her place of birth. If this is not available, we take the place of residence at which the founder lived longest during the last five years. We decided to prioritize place of birth over place of residence because the former one better grasps the essence of social capital and local embeddedness (McKeever et al. 2015). Also, the identity with a certain place is strongly related an individual's personal biography and family roots (Malecki 2012). In our understanding, these aspects are better related to the place of birth than the last place of residence. For the distinction between start-ups and spinoffs, we focus on the previous employments of firm founders. For pre-entry work experience, we first identify the plants where the entrepreneur worked during the last five years before the founding of his or her venture. Then, the industry codes between the prior employers and the new firm are compared. If the founder worked for least one of the last five years in the same 4-digit industry, he or she is considered of having significant industry experience. Consequently, the venture will be considered a spinoff[5].

Finally, we include a number variables at known to co-determine both survival and growth. First of all, since a main objective of this study is to assess potential differences between urban and rural areas, several regional variables are taken into consideration. We delimit regions based on the concept of Functional Analysis regions (FA regions) by the Swedish Agency of Economic and Regional Growth (2011). The 72 FA regions are defined from inter-municipality

[4] New means that the unique firm identifier appeared the first time and if, in the dataset, the firm is classified as new. The same holds for new plants.

[5] Due to the risk of granularity, we also tested 3-digit and 5-digit definitions of spinoffs and found that the results are relatively similar. More importantly however, we decided to take the 4-digit definition because it represents a good compromise between a too narrow and a too wide conceptualization of "same industry".

commuting patterns and cohesiveness of industry structure. They are moreover differentiated between metropolitan (3 FA regions), urban (19 FA regions), and peripheral (50 FA regions).

Table 1: Variable description and descriptive statistics

n=313,235	Mean	Std. Dev.	Min	Max	Description
Firm exit	0.327	0.469	0	1	Binary variable, depicting whether a firm is not present at the last observation period (1=yes)
Firm growth	80.1	42.6	1	246	Average yearly change in employment as percentage of initial employment.
International firm	0.052	0.222	0	1	Plant related to a foreign owned firm
Swedish multi-plant firm	0.229	0.420	0	1	Plant related to a domestically owned firm which maintains more than one plant
Swedish single-plant firm	0.644	0.897	0	1	Plant related to a domestically owned firm which maintains only one plant
New firm	0.741	0.261	0	1	Defined as a newly created plant from newly created firm.
Start-up	0.046	0.297	0	1	Defined as newly created firm with a founder *without* pre-entry experience.
Non-local start up	0.030	0.171	0	1	Start-up founded by an entrepreneur who was not born in the same labour market region as the location of the firm
Local start up	0.016	0.126	0	1	Start-up founded by an entrepreneur who was born in the same labour market region as the location of the firm
Spinoff	0.028	0.232			Defined as newly created firm with a founder *with* pre-entry experience.
Non-local spinoff	0.018	0.132	0	1	Spinoff founded by an entrepreneur who was not born in the same labour market region as the location of the firm
Local-spinoff	0.010	0.100	0	1	Spinoff founded by an entrepreneur who was born in the same labour market region as the location of the firm
Firm size	0.121	0.684	0.01	88.1	Number of employees (in 100s) at the first observation period
Higher Education	0.814	0.389	0	1	Binary variable, depicting whether the entrepreneur has a higher education degree (1=yes)
Sex	0.720	0.449	0	1	Binary variable, depicting whether the entrepreneur is male (1) or female (0)
Age	46.6	11.1	16	93	Age (in years) of the entrepreneur
Change of ownership	0.093	0.290	0	1	Binary variable, depicting whether the ownership category for a firm changed during the entire observation period
Relative specialization	1.13	1.64	0	18.5	Percentage of same 4-digit industry jobs in a labour-market-region
Absolute specialization	4.44	9.13	0	74.0	Amount of same-industry plants in a labour-market-region (in 1000)

Further, as industry clustering tend to improve the growth of firms (Audretsch 2012), we measure for every plant the size of the regional industry by counting all other plants with the same 4-digit industry code within a labour market region. While we expect absolute specialization to lead to superior growth rates due to competition effects, the association with survival is less straightforward. Both Borggren et al. (2016) and Cainelli et al. (2014) show for

Sweden and Italy, respectively, that specialization could be both positively and negatively associated with firm survival depending on industry and type of region. While it on the one hand may lead to higher risks of failure due to competition, it might also be that the surviving firms are more fit to the regional system. To better capture this, we also account for relative industry specialization by, for every plant, measure the percentage of jobs within the labour market region that are associated to the same 4-digit industry code. A high specialization value thus means that the industry a firm is active in is relatively well represented within the labour market region which could indicate a relative fit. The motivation behind including also a relative figure of specialization is that industries that dominate the regional economy could be more competitive for regional resources, command the political attention of regions and that well-functioning economic ecosystems cannot accommodate too many major industries (see Kemeny and Storper 2015). Thus, while absolute specialization is related to the potential of sharing, matching and learning, relative specialization captures more institutional aspects of industry clustering.

The empirical analysis consists of three parts. First, we discuss descriptive statistics of entrepreneurial dynamics in Swedish labour market regions. Here, we are primarily interested in identifying to what extent labour market regions differ in the pace of new firm formation, and if some regions are characterized by relatively high (or low) amounts of local entrepreneurs or spinoffs. Second, logistic regression models are used to assess which types of firms show a higher chance to survive. We are especially interested in investigating if young firms from entrepreneurs with home advantage or industry experience are more or less likely to exit in specific regions. In a last step, we analyse those firms that do not exit during our period of analysis, and measure their growth. More specifically, we construct several OLS models with average annual job growth rate[6] as dependent variable and use the same explanatory variables as in the logistic regression models. For all models, we use (local) spinoffs as reference category for our firm type variable, as this is the primary firm type we are interested in. By using it as reference category, we are able to compare it to all other firm types simultaneously. Table 1 gives an overview of the descriptive statistics of employed variables, and a correlation table can be found in appendix A.

4 Results

First, we give a descriptive overview of spinoff dynamics in different regions in Sweden (see table 2). While entrepreneurship rates traditionally have been rather low in Sweden compared to other European countries, it has increased in magnitude over the last couple of years. For example, the relative transition from the traditional Swedish welfare model aiming to reduce regional disparities by means of state interventions to more supply-driven policies has put increasing focus on the role of entrepreneurship as a mean to sustain employment, especially in the more peripheral regions suffering from job shortage. Still, according to the 2016 Swedish Global Entrepreneurship Monitor (GEM) report (Entreprenörskapsforum 2016), the rate of entrepreneurial activity is low (around 7% in 2012 which is comparable to countries like Switzerland and the Netherlands. That is higher than, for example Germany, but far lower than,

[6] The average annual growth rate is derived from the absolute difference of employees between the first and last year of observation. Depending on the first year of observation, the analysis period is 2004-2012 or 2005-2013.

for example Canada and the US with 15% and 12%, respectively). Also, as a result of the relatively developed welfare state in Sweden, opportunity driven incentives to start a business as compared to more necessity-driven incentives are far more common compared to most other countries. As can be seen in table 2, there is a strong metropolitan bias. The majority of start-ups (and SMEs in general) is found metropolitan regions (around 50%). Despite of their large share of the Swedish territory, peripheral regions only account for 16% of plants, and urban areas host 36%, which is comparable to previous studies (e.g. Borggren, Eriksson, and Lindgren 2016). Further, entrepreneurial dynamics are most pronounced in metropolitan areas where we witness more newly created firms, but also a lower rate of survival. Finally, spinoffs are slightly more common in metropolitan areas, and local entrepreneurs somewhat more frequent in peripheral regions. But generally speaking, and in line with the results from Andersson et al. (2016), spinoff rates seem not to differ much between core and non-core regions.

Table 2: Regional descriptive statistics

Region Type	Number of FA-Regions	Share of new firms	Number of new firms	share of surviving new firms of all new firms	share of spinoffs of all new firms	share of local entrepreneurs of all entrepreneurs
Metropolitan	3	8.3	12,808	27.1	36.1	34.3
Urban	19	6.3	7,300	27.9	34.9	35.2
Peripheral	50	6.0	3,114	29.2	34.2	39.0
Sweden	72	7.2	23,222	27.6	35.5	35.2

We start the inferential analysis by discussing some general results regarding firm survival (table 3). First of all, the reported average marginal effects (for which positive values indicate a higher risk of exit) show that, compared to spinoffs, start-ups face higher risks of exiting (the expected difference in the probability of exiting associated with being a start-up compared to a spinoff is almost 3 percentage points), while incumbents all are more resilient than both start-ups as well as spinoffs (model 1). This is by no means a surprise, as the liability of newness (Schoonhoven 2015) importantly increases the risks of young firms to exit. These findings are robust when adding control variables on the entrepreneur, the firm and region in model 2, as well as when introducing regional- and industry-fixed effects in model 3 (the probability for start-ups to exit compared to spinoffs is slightly increasing). Further, the findings in model 3 also show that larger plants are less likely to exit, as are plants run by higher educated younger men. There is also a significant, albeit small, negative association between absolute specialization and exit (about 0.5 percentage point higher probability of exit per 1000 plants). Relative specialization is not associated with exit when controlling for unobserved industry and regional fixed effects. In model 4, we exclude all incumbent firms to focus on differences between entry types based on the origin of the founder. Our results show that all types of entries face higher risks of exit than local spinoffs, and this difference is significant for both local and non-local start-ups (ranging between almost 4 and 6 percentage points).

Table 3: Logistic regression with firm exit as dependent variable reporting average marginal effects

	Model 1 All firms	Model 2 All firms	Model 3 All firms	Model 4 All new firms	Model 5 New firms in met. regions	Model 6 New firms in urban regions	Model 7 New firms in rural regions
International firm	-0.617***	0.049***	-0.490***				
	(0.005)	(0.006)	(0.007)				
Swedish multi-plant firm	-0.655***	-0.538***	-0.491***				
	(0.004)	(0.005)	(0.006)				
Swedish single-plant firm	-0.529***	-0.486***	-0.468***				
	(0.004)	(0.005)	(0.005)				
Start-up	0.028***	0.031***	0.035***				
	(0.004)	(0.004)	(0.005)				
Spinoff (reference)							
Plant size		-0.817***	-0.759***				
		(0.011)	(0.011)				
Higher Education (1=yes)		-0.018***	-0.024***	-0.012*	-0.016	-0.0006	0.826
		(0.002)	(0.002)	(0.007)	(0.010)	(0.0133)	(0.111)
Sex (1=male)		-0.047	-0.046***	-0.004	-0.006	0.005	0.871
		(0.002)	(0.002)	(0.007)	(0.009)	(0.129)	(0.114)
Age		0.001***	0.007***	0.0008***	-0.001***	-0.0007	0.997
		(0.000)	(0.0001)	(0.0002)	(0.000)	(0.0005)	(0.005)
Change of ownership		-0.105***	-0.113***	-0.148***	-0.160***	-0.133***	0.383***
		(0.003)	(0.003)	(0.010)	(0.0124)	(0.020)	(0.082)
Relative specialization		-0.016***	0.00004	0.003	-0.0005	0.003	0.009
		(0.001)	(0.0017)	(0.008)	(0.0235)	(0.026)	(0.075)
Absolute specialization		0.0018***	-0.0004***	-0.0004	0.0007	0.003	0.009
		(0.0001)	(0.0001)	(0.0007)	(0.0014)	(0.019)	(0.013)
non-local start-ups				0.059***	0.054***	0.065***	0.050*
				(0.009)	(0.013)	(0.168)	(0.026)
non-local spinoffs				0.006	-0.010	0.026	0.019
				(0.010)	(0.013)	(0.018)	(0.027)
local start-ups				0.037***	0.024*	0.063***	0.028
				(0.010)	(0.136)	(0.018)	(0.027)
local spinoffs (reference)							
Industry FE	No	No	Yes	Yes	Yes	Yes	Yes
Municipality FE	No	No	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	313,235	313,235	313,235	23,032	12,575	7,090	2,885
pseudo R-sq	0.061	0.097	0.124	0.141	0.135	0.174	0.179
Area under ROC curve	0.619	0.713	0.734	0.753	0.747	0.777	0.781

Standard errors in parentheses; * p<0.10, **p<0.05, *** p<0.01

Table 4: OLS model with average yearly growth (in percent) as dependent variable

	Model 8 All firms	Model 9 All firms	Model 10 All firms	Model 11 All new firms	Model 12 New firms in met. regions	Model 13 New firms in urban regions	Model 14 New firms in rural regions
International firm	-12.76***	-12.15***	-12.14***				
	(0.342)	(0.340)	(0.342)				
Swedish multi-plant firm	-13.10***	11.94***	-11.80***				
	(0.332)	(0.331)	(0.333)				
Swedish single-plant firm	-13.01***	-12.32***	-12.23***				
	(0.331)	(0.329)	(0.328)				
Start-up	-1.282***	-1.263***	-1.366***				
	(0.265)	(0.263)	(0.263)				
Spinoff (reference)							
Plant size		-0.515***	-0.550***				
		(0.028)	(0.029)				
Higher Education		0.136***	0.030	0.764	0.939	1.27	0.020
		(0.061)	(0.064)	(0.519)	(0.744)	(0.904)	(1.471)
Sex		0.379***	0.007	1.215**	1.582**	0.592	-1.581
		(0.055)	(0.061)	(0.488)	(0.673)	(0.880)	(1.560)
Age		-0.104***	-0.112***	-0.138***	-0.125***	-0.182***	-0.063
		(0.002)	(0.002)	(0.018)	(0.026)	(0.033)	(0.053)
Change of ownership		1.072***	0.987***	13.88***	14.08***	13.83***	11.29***
		(0.073)	(0.074)	(0.577)	(0.768)	(1.127)	(1.780)
Relative specialization		-0.132***	-0.081**	0.858	2.530	1.015	0.911
		(0.016)	(0.0412)	(0.523)	(1.617)	(1.782)	(0.987)
Absolute specialization		0.036***	0.030***	-0.024	-0.147	0.282	-0.378
		(0.003)	(0.004)	(0.053)	(0.0983)	(1.221)	(4.307)
non-local start-ups				0.822	1.630*	0.901	-2.734*
				(0.618)	(0.901)	(1.108)	(1.576)
non-local spinoffs				1.209*	1.368	2.265**	-2.998*
				(0.637)	(0.896)	(1.079)	(1.614)
local start-ups				-0.634	-0.584	-0.684	-1.647
				(0.651)	(0.941)	(1.129)	(1.664)
local spinoffs (reference)							
constant	113.6***	117.3***	118.7***	107.7***	92.33***	106.2***	117.1***
	(0.329)	(0.348)	(0.592)	(4.991)	(15.44)	(8.035)	(9.164)
Industry FE	No	No	Yes	Yes	Yes	Yes	Yes
Municipality FE	No	No	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	210,742	210,742	210,742	6,417	3,474	2,035	908
Adj. R-sq	0.063	0.076	0.085	0.174	0.191	0.177	0.134

Standard errors in parentheses; * p<0.10, **p<0.05, *** p<0.01

To assess whether this finding is driven by either the heritage or the home advantage rather than the combination thereof, additional models were estimated (see appendix B, models 15-18)[7]. There, the heritage effect is positively associated with higher survival in all types of regions, while home advantage has a negative effect on firm survival. This is a strong indication that spinoffs are generally less likely to exit in comparison to start-ups, and that the home advantage overall does not seem to play a decisive role for firm survival. Thus, hypothesis 1 stating that local spinoffs show the lowest chance to exit, can only partly be accepted. The positive effect on survival is only related to heritage, but not to home advantage.

In models 5-7, we differentiate between firms in metropolitan, urban, and peripheral regions. The results are quite similar between the different types of regions with two exceptions. The risk of exiting slightly increases for start-ups in urban regions, and only non-local start-ups is (weakly) significant in peripheral regions. This indicates that the differences in survival between different types of firms is less pronounced in the periphery while industry experience is more important for survival in urban regions compared to metropolitan regions. The models with isolated effects (appendix B, models 15-18) show that industry experience significantly decrease the risk of exit in all types of regions. Further, there is a home advantage among firms in metropolitan regions but not in urban or peripheral regions. There is thus no indication that local spinoffs have a stronger comparative advantage in the periphery than in metropolitan or urban areas. Rather, it seems as if the heritage effect is slightly weaker in the periphery, as local start-ups do not have a significantly higher risk to exit. We thus have to reject hypothesis 2.

We now turn to the results of our job growth models (table 4). It follows the same step-wise structure as the survival model presented in table 3. First, we estimate job growth on all firms (model 8), then controllers and fixed effects are added (models 9-10) and then we estimate job growth among the surviving new firms for the whole of Sweden (model 11) and in different types of regions (models 12-14). The results of model 8 show that all coefficients are negative, and that the coefficients of incumbent firms are much lower than for start-ups. This implies that surviving new firms grow faster than surviving incumbents. This is of course far from surprising, as newly created firms will often follow a growth strategy in their first years of existence, and grow faster in relative terms, as they start – by definition – with one employee. More interesting is that start-ups show significantly lower growth rates than spinoffs. Although the size of all the coefficients in model 8 are smaller when adding the control variables in model 8 and fixed effects in model 9, the results remain stable. The control variables are also in line with expectations as large firms tend to grow slower (in relative terms), firms located in large concentrations of same-industry firms (absolute specialization) tend to be more competitive and grow faster, while a high relative concentration is does impede firm growth.

When looking at model 10, however, it becomes clear that the results for job growth are not identical to survival rates. Non-local spinoffs show significantly higher growth rates than local spinoffs. The results for non-local and local start-ups are not significant. Although only significant at the 10% level, this is an indication that, for firm growth, not heritage, but origin plays a decisive role. Our model with isolated heritage and home advantage variables (appendix

[7] We do this by constructing two independent binary variables for heritage and home advantage. These two variables replace the categorical firm class variable. All other model specifications stay unchanged..

B, model 19) clearly confirms this finding: While the difference between start-ups and spinoffs is not significant, firms from local entrepreneurs show significantly lower growth rates than firms from non-local founders.

Thus, in contradiction with hypothesis 3, home advantage actually is a disadvantage in relation to firm growth, as non-local entrepreneurs show higher growth rates than local entrepreneurs. This home disadvantage can be witnessed in metropolitan regions (model 12) and urban regions (model 13). In peripheral regions (model 14), however, the results are opposite: All entry types have lower growth rates in comparison to local spinoffs. This is supported by the results of the models with isolated effects (appendix B, models 20-22), where start-ups do not perform significantly worse than spinoffs, but locals show significantly lower growth rates in metropolitan and urban regions, and significantly higher growth rates in the periphery. We can thus assume that the home advantage is only effective in peripheral regions. In metropolitan and urban areas, ventures from local entrepreneurs show lower growth rates compared to non-local founders. Hypothesis 4, assuming that local spinoffs have the highest comparative advantage in terms of employment creation in the periphery, can thus be accepted.

5 Conclusion

The aim of this paper was to explore which entrepreneurial traits are important for firm performance in the periphery. Special emphasis was put on the role of industry experience and origin of entrepreneurs on firm survival and job growth of new firms in metropolitan, urban and peripheral regions. The results are noteworthy in several respects. First, for new firms, the determinants for survival do not seem to be the same as for job growth. Our results show that industrial heritage is decisive with regard to firm survival, while origin is more important for firm growth. Second, heritage seems to be important for firm survival in both core and peripheral regions, and thus it is a relatively universal phenomenon across space. In comparison to peripheral regions, heritage is however more influential in metropolitan and urban regions. This, we argue, could be related to fiercer competition in core regions. In highly competitive environments, industry experience is an essential feature for survival during the challenging starting phase, while new firms in the periphery may have more time to adapt and learn. With regard to firm growth, the difference between start-ups and spinoffs is insignificant in all region types. This result is interesting for the heritage literature, as it operationalizes performance mostly as firm survival, and seldom as employment growth (Boschma 2015). Yet, gaining more insights on growth patterns of spinoffs would be especially relevant for peripheral regions, where entrepreneurship often is heralded as being essential for mitigating structural problems of job destruction (OECD 2014). In fact, our findings show that different mechanisms influence the survival and the growth of firms, and that home advantage is essential to increase the much desired employment effects in peripheral regions.

Third, when looking more closely at the success of new firms in the periphery, our results support our theoretical argument that local entrepreneurs with significant industry experience have the strongest positive impact on regional development (Furlan and Grandinetti 2016), as firms with industry experience are more likely to survive and local surviving firms are more likely to generate jobs. For metropolitan and urban areas however, the somewhat surprising result that local entrepreneurs perform worse urge for an alternative explanation. As urban areas

tend to attract highly-skilled individuals (Eriksson and Rodríguez-Posé 2017), the lower growth rates of local entrepreneurs in metropolitan and urban regions are probably related to relatively high in-migration from highly skilled entrepreneurs. In this logic, local entrepreneurs are not less capable of running business than the national average, but simply have to compete with especially well skilled and talented in-migrants. This fierce competition makes it more difficult for the "average" local entrepreneur to prevail in core regions in comparison to the non-core regions. Conversely, the literature on the spatial sorting of skills suggest that less productive workers move from urban to rural areas (De la Roca and Puga 2017). This would imply that non-local entrepreneurs in the periphery might be less competitive than their local counter-parts, despite potentially bringing in new knowledge to the region when stepping down the urban escalator. Another explanation for higher growth rates for local entrepreneurs in the periphery emphasizes the need of having access to social network externalities (e.g., formal and informal support from other businesses and actors if market deficiencies lead to weak supporting institutions), something that non-local actors might have difficulties to access. As social networks in peripheral regions are often introverted and social acceptance is difficult to attain, outsiders may thus be significantly disadvantaged in the periphery (Mayer and Meili 2016). Lastly, it is important to take into account the high social responsibility and regional engagement of entrepreneurs in the periphery (Bürcher 2017). In this sense, higher job growth of firms from local entrepreneurs could hint to the fact that they are more sensitive towards their role as local employer and are thus more willing to create jobs. Even though skill-sorting might have a certain influence, we argue for a stronger emphasis on local embeddedness and regional engagement to explain the higher growth rates of local spinoffs in the periphery.

This study does not come without limitations. First, as we analyse spinoff dynamics at the regional, and not at the industrial level, we are not able to capture differences in spinoff dynamics between industries although controlling for industry-specific fixed effects. Neither have we accounted for parent characteristics. Even though inter-industry differences and parent characteristics might be significant, our main focus here was not on spinoff dynamics of specific industries, but the general effect of spinoff dynamics in different types of regional economies. Future studies could bring further knowledge on the industry specificities across space. Second, as for all national studies, applying our results on other national contexts has to be done with some caution. For example, the Swedish context which frames this analysis is characterised by a relatively strong welfare system, which implies that relatively few start-ups could be regarded as truly necessity driven. Hence, the start-ups identified here could in general be regarded as more resilient as inexperienced start-ups in, for example, the US. Still, the overall level of entrepreneurship in Sweden reflects many other small European countries (Entreprenörskapsforum 2016). Third, we looked at a relatively short period of time and are thus only able to analyse the short- to medium-term performance of new firms. Certainly, it would be interesting to analyse the whether the determinants for long-term survival and growth differ from our results. Finally, the results cannot show exactly how heritage and home advantage influence entrepreneurial agency, and how these aspects might interact with one another. As quantitative studies, such as this one, are well suited to identify general relationships, qualitative studies are better suited to explain the underlying mechanisms and the influence of the local context (Habersetzer 2017).

Our results permit some conclusions for policy implications, especially regarding development policies for peripheral regions. Classical entrepreneurship policies are seldom suited for peripheral regions, as these often focus on generating agglomeration externalities and building up supporting institutions (McCann and Ortega-Argilés 2015; Stathopoulou, Psaltopoulos, and Skuras 2004). This can be a relatively costly endeavour, especially in sparsely populated areas since entrepreneurship policies tend to aim at "strengthening the viability and competitiveness of existing SMEs rather than focusing on what is arguably the greater challenge of developing the entrepreneurial capacity" (North and Smallbone 2006). It might thus be more promising to focus on personal traits of entrepreneurs, namely on a combination of industry and home advantage. In other words, entrepreneurship policies for peripheral regions could target specific individuals, specifically those originating from the region with clear industry experience and which are embedded in the regional economy. This would also comprise returnees. As pointed out earlier, many entrepreneurs return to their home region to start their companies. Entrepreneurship policies for peripheral areas could thus encourage and support these persons when returning home to found their business. It would be fascinating to observe if such an approach – based on the results of this study – would be an effective way to support entrepreneurial dynamics in the periphery.

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Appendix A: Correlation table

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	International Firm	1													
2	Swedish multi-plant	-0.1279	1												
3	Swedish single-plant	-0.1636	-0.3803	1											
4	non-local startup	-0.0414	-0.0964	0.1230	1										
5	local startup	-0.0299	-0.0696	-0.0890	-0.0225	1									
6	non-local spinoff	-0.0315	-0.0733	-0.0938	-0.0238	-0.0171	1								
7	local spinoffs	-0.0237	-0.0551	-0.0856	-0.0178	-0.0129	-0.0136	1							
8	Plant size	0.0736	0.1278	-0.0633	-0.0288	-0.0208	-0.0219	-0.0164	1						
9	Higher Education	0.0451	0.1361	-0.0750	0.0089	-0.0034	0.0038	-0.0032	0.0435	1					
10	Sex	0.0410	-0.2163	0.0878	-0.0043	-0.0009	0.0077	0.0098	0.0009	-0.0934	1				
11	Age	-0.0356	0.0873	0.0156	-0.1013	-0.1092	-0.0810	-0.0816	0.0394	-0.1411	0.0197	1			
12	Change of ownership	0.0252	-0.0104	0.0041	-0.0094	-0.0182	-0.0067	-0.0141	0.0185	0.0265	0.0584	-0.0208	1		
13	Relative specialization	-0.0683	0.3586	-0.1325	-0.0437	-0.0290	-0.0084	-0.0037	0.0974	0.0935	-0.2751	0.0391	-0.0618	1	
14	Absolute specialization	-0.0303	0.1465	-0.0598	-0.0097	-0.0082	0.017	0.0074	0.0459	0.0748	-0.1666	-0.0028	-0.0134	0.5085	1

Appendix B: Isolated effects of work experience and origin (controllers excluded from table)

	Exit (Average marginal effects)				Job growth			
	Model 15 All new firms	Model 16 New firms in met. regions	Model 17 New firms in urban regions	Model 18 New firms in rural regions	Model 19 All new firms	Model 20 New firms in met. regions	Model 21 New firms in urban regions	Model 22 New firms in rural regions
Startup vs. Spinoff (1=startup)	0.047***	0.050***	0.048***	0.030*	-0.475	-0.026	-1.111	-0.504
	(0.006)	(0.008)	(0.011)	(0.017)	(0.404)	(0.572)	(0.715)	(1.087)
Origin (1=local)	-0.016***	-0.015*	-0.012	-0.020	-1.351***	-1.865***	-1.890**	1.930*
	(0.006)	(0.008)	(0.011)	(0.017)	(0.420)	(0.604)	(0.758)	(1.104)
Full set of controllers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-sq / Adj. R-sq	0.141	0.135	0.174	0.179	0.174	0.191	0.177	0.134
N	23,032	12,575	7,090	2,885	6,417	3,474	2,035	908

Standard errors in parentheses; * p<0.10, **p<0.05, *** p<0.01

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